

Switched-Current Power Converter

Abstract

In the switched-current power converter, a plurality of constant current sources provide equal currents to a plurality of switch pairs that may direct the several currents either to return or to the output capacitor and the load. The dynamic response to changes in load current can be nearly instantaneous, just as fast as the switches can switch. As an extreme example, if all terminal switches are switched from return to the output and then back to return, the switched-current power converter can go from zero load to full load and back to zero load nearly instantly, with no di/dt in the power distribution bus or the power source circuitry. Another embodiment of the invention incorporates switched-charge circuitry, so that the output voltage can step nearly instantly and precisely.